WHAT IS CLAIMED IS:

1. A phase-change optical information recording medium in which information can be recorded, erased and read, comprising:

a substrate; and

a recording layer located overlying the substrate and achieving a crystal phase and an amorphous phase,

wherein the recording layer satisfies the following relationship:

$$Ac < Aa$$

wherein Ac represents an absorptance of the recording layer in the crystal phase against light having a wavelength of from 370 nm to 450 nm and Aa represents an absorptance of the recording layer in the amorphous phase against the light having a wavelength of from 370 nm to 450 nm.

2. The phase-change optical information recording medium according to Claim 1, wherein information is recorded in the recording layer with light having a wavelength of from 370 nm to 450 nm at a recording pitch of 0.3 μm to 0.52 μm.

3. The phase-change optical information recording medium according to Claim 2, wherein the information is

recorded in the recording layer while maintaining a ratio of the recording pitch to a recording beam diameter in a range of from 0.5 to 0.9.

4. The phase-change optical information recording medium according to Claim 2, wherein the information is recorded at a recording density of 0.05 μm/bit to 0.16 μm/bit.

5. The phase-change optical information recording medium according to Claim 2, wherein the information is recorded at a line speed of from 1.2 m/s to 14.0 m/s.

6. The phase-change optical information recording medium according to Claim 1, further comprising a lower protective layer located between the substrate and the recording layer, an upper protective layer located on the recording layer, a heat dissipation layer located on the upper protective layer, and an ultraviolet curable resin layer located on the heat dissipation layer, wherein each of the lower and the upper protective layers has a refractive index of from 1.8 to 2.19.

7. The phase-change optical information recording medium according to Claim 1, wherein the recording layer

comprises Ag, In, Sb, and Te.

8. The phase-change optical information recording medium according to Claim 1, wherein the substrate has grooves having a depth of from 25 nm to 50 nm.

9. The phase-change optical information recording medium according to Claim 1, wherein the recording layer has a thickness of from 7 nm to 20 nm.

10. An information recording method comprising:

providing a phase-change optical information recording medium comprising a substrate and a recording layer located overlying the substrate and achieving a crystal phase and an amorphous phase, wherein the recording layer satisfies the following relationship:

$$Ac < Aa$$

wherein Ac represents an absorptance of the recording layer in the crystal phase against light having a wavelength of from 370 nm to 450 nm and Aa represents an absorptance of the recording layer in the amorphous phase against the light having a wavelength of from 370 nm to 450 nm; and

recording information in the recording layer using light having a wavelength of from 370 nm to 450 nm at a recording pitch of from 0.3 μm to 0.52 μm.

11. The information recording method according to Claim 10, wherein the information recording is performed while maintaining a ratio of the recording pitch to a recording beam diameter in a range of from 0.5 to 0.9.

12. The information recording method according to Claim 10, wherein the information recording is performed at a recording density of 0.05 μm/bit to 0.16 μm/bit.

13. The information recording method according to Claim 10, wherein the information recording is performed at a line speed of from 1.2 m/s to 14.0 m/s.

14. An information recording and reading method comprising:

providing a phase-change optical information recording medium comprising a substrate and a recording layer located overlying the substrate and achieving a crystal phase and an amorphous phase, wherein the recording layer satisfies the following relationship:

$$Ac < Aa$$

wherein Ac represents an absorptance of the recording layer in the crystal phase against light having a wavelength of from 370 nm to 450 nm and Aa represents an absorptance of

the recording layer in the amorphous phase against the light having a wavelength of from 370 nm to 450 nm;

recording information in the recording layer using light having a wavelength of from 370 nm to 450 nm at a recording pitch of from 0.3 μm to 0.52 μm; and

reading the information with light at a line speed of from 1.2 m/s to 14.0 m/s.